Application Number: T3-00007 **Scientific Score**: 89

Specific names of individuals and institutions are blacked out to preserve applicant confidentiality where possible.

Title: Training in the Biology of Human Embryonic Stem Cells and Emerging Technologies

Proposal Abstract as Submitted by Applicant

This is a Type III CIRM Training Proposal for 6 postdoctoral fellows to be educated at the [redacted]. This Program is designed to develop and enhance research opportunities for postdoctoral fellows training for careers in the field of human stem cell biology. Our goals are to develop a curriculum of study and research experiences necessary to provide high quality research training and to ensure a continuing supply of well-trained scientists prepared to conduct cutting-edge health-related research in human embryonic stem cell biology. The rationale for this Training Program is that a deep understanding of the biology of human embryonic stem cells will be essential for utilizing them successfully to develop new therapies for human diseases. For this purpose we suggest a full range of multi-disciplinary training activities that range from the study of basic principles of stem cell biology, encompassing genetic, biochemical, and cellular approaches, to theoretical and practical aspects of stem cell related emerging technologies, to ethical, legal, and social issues involved with stem cell research, to colloquiums, lectures and seminars, with the ultimate goal of providing a well rounded training experience in the field of human embryonic stem cell biology. Training in research has been a key activity of [redacted] since its inception, reflected in the fact that many of the more than 2,000 scientists trained at [redacted] have gone on to positions of leadership in other prominent research centers worldwide, including five Nobel prizes. This proposal aims to continue this record of achievement by capitalizing on the multi-disciplinary range of conceptual and methodological expertise present at [redacted] in the biomedical field, that will be enhanced by the close research and training collaborative activities with the nearby institutions, [redacted], [redacted] and [redacted].

Benefit of this Program to California

This program will benefit the people and the state of California by providing high-quality training in the scientific, clinical, social, and ethical aspects of stem cell research to the scientists and clinicians who will develop and apply future therapies in this rapidly emerging field.

Summary of Review

This application seeks to establish a type III training program for 6 post-doctoral fellows; each working with one of 14 highly-qualified mentors whose research is highly relevant to stem cell research. To enhance the quality of the training experience, trainees will be assigned to an advisory group with two additional faculty members. The program offers a range of excellent courses in stem cell biology techniques that will take advantage of in-place programs on the biology of early embryonic stem cells, their renewal, and their cell-cycle kinetics. It uniquely combines bioinformatics, combinatorial chemistry, and

bioengineering with existing programs in cancer and genomics. The proposed coursework, the system of monitoring the progress of the individual trainees, and the systematic evaluation of trainees on an annual basis by the executive committee ensure appropriate integration. The program director is highly qualified to lead this program having trained 48 postdoctoral fellows, and currently heads a post-doctoral training grant at this institution. The applicant pool is superb; there is an institutional history of being able to draw upon outstanding post-doctoral fellows. Efforts are described to enhance the diversity of the applicant pool through outreach programs and appropriate advertisement. The institution has an excellent reputation and track record having trained more than 2000 scientists, many of whom have gone to positions of leadership in other prominent research centers.

Overall Strengths and Weaknesses

Overall, the proposed training program is impressive and well-organized under the strong leadership of the program director. It provides an outstanding training environment for basic research, outstanding faculty mentors, and additionally offers interaction with other local institutions with strong programs in stem cell biology. A limited exposure to clinical and disease aspects of stem cell biology was cited as a possible weakness.

Recommendations

Highly meritorious and recommended for funding.

	Pre	Post	Clinical	Total
Fellows Requested:	0	6	0	6
Fellows Recommended:	0	6	0	6

	Year 1	Total
Budget Requested:	$ 498,960	$ 1,496,880
Budget Recommended:	$ 498,960	$ 1,496,880